

2009 VA USBC Code Updates

International Mechanical Code, International Residential Code & International Energy Conservation Code (Mechanical Provisions)



- Jack A. Proctor Virginia Building Code Academy
- Department of Housing and Community Development



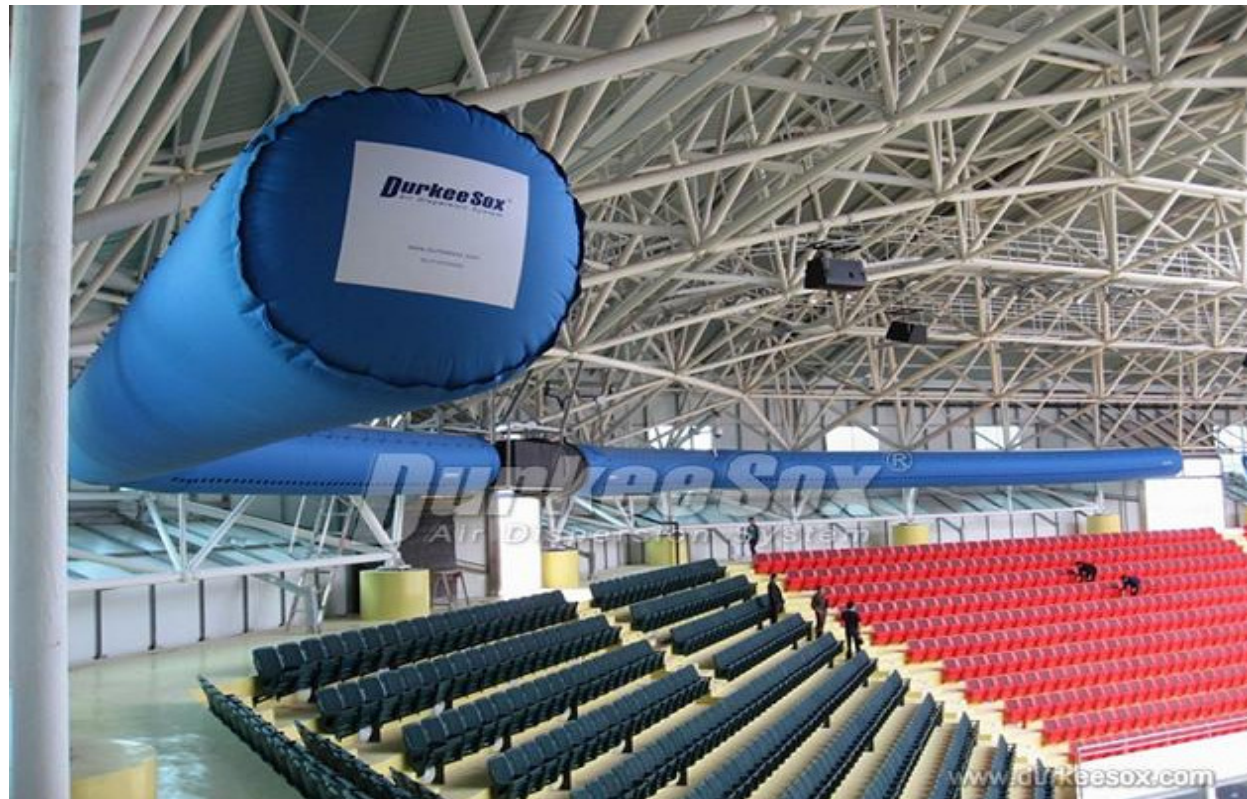


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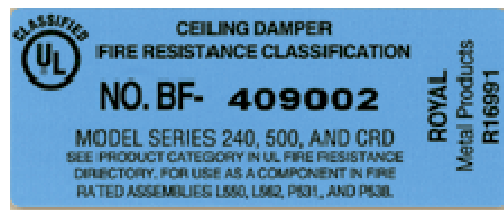
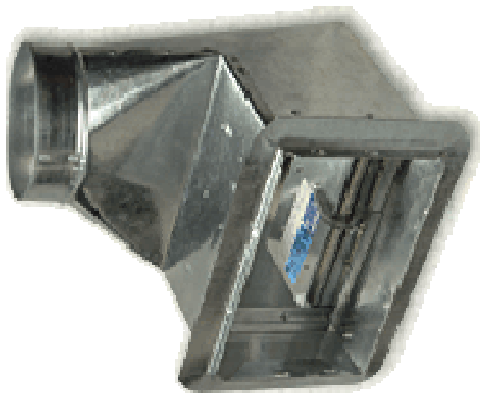
IMC Chapter 2 Definitions

Added term “Air Dispersion System” to address new materials.



IMC Chapter 2 Definitions (added descriptive terms from IBC)

- Ceiling Radiation Damper
- Combination Fire Smoke Damper



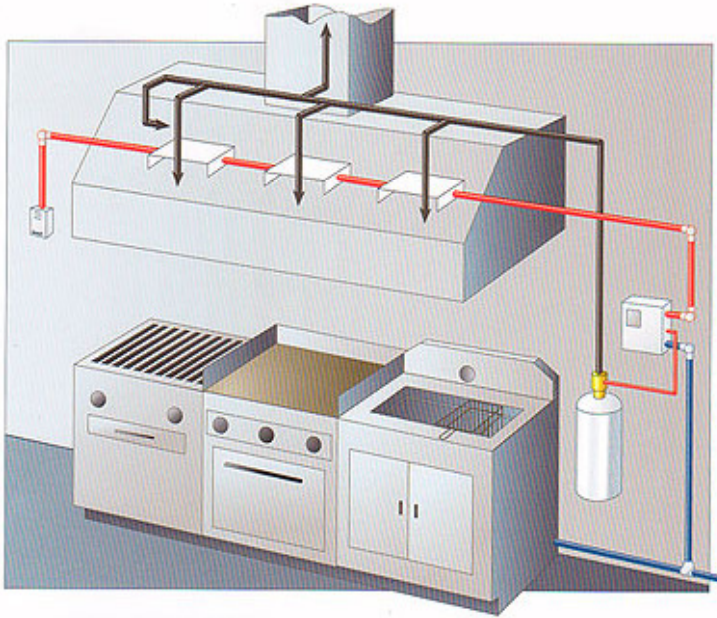
IMC Chapter 2 Definitions (added descriptive terms from IBC)

- Fire Damper
- Smoke Damper



IMC Chapter 2 Definitions

- Type I Hood—
Added fire suppression.



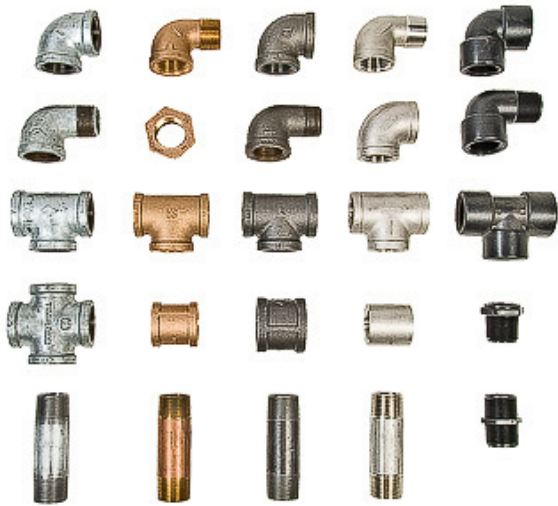
- Type II Hood—
Added products of combustion.



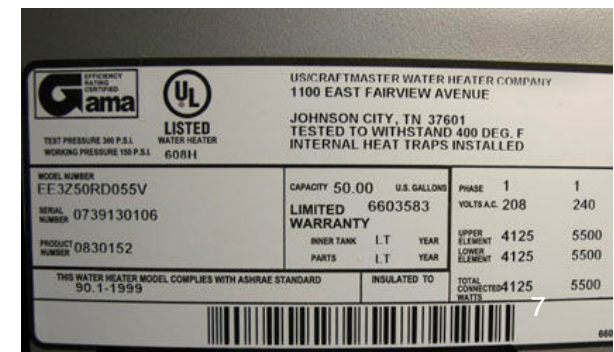
IMC Chapter 2 Definitions

“Listed” – Certified by an approved agency.

“Labeled” – NRTL certified/approved and label is affixed to the appliance.



Manufacturer's Label



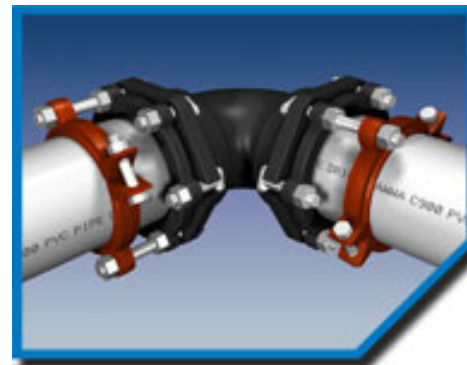
IMC Chapter 2 Definitions

New definition for
“Interlock” –
requires action
by one or more
devices for
activation.



IMC Chapter 2 Definitions

- Added
“Push Fit Joints”
- Clarified
“Mechanical Joints”



IMC Chapter 2 Definitions

- Changed Light Duty Appliance
 - Deleted deck style pizza ovens.
 - Added elec./gas pasta cookers.
 - Added countertop pizza conveyor.



IMC Chapter 2 Definitions

- Medium Duty Appliance –
- Deleted elec./gas pasta cookers.
(moved to light duty)



IMC Chapter 2 Definitions

- All added by USBC last code cycle (M-44)
 - Breathing Zone
 - Net Occupiable Floor Area
 - Occupiable Space
 - Zone



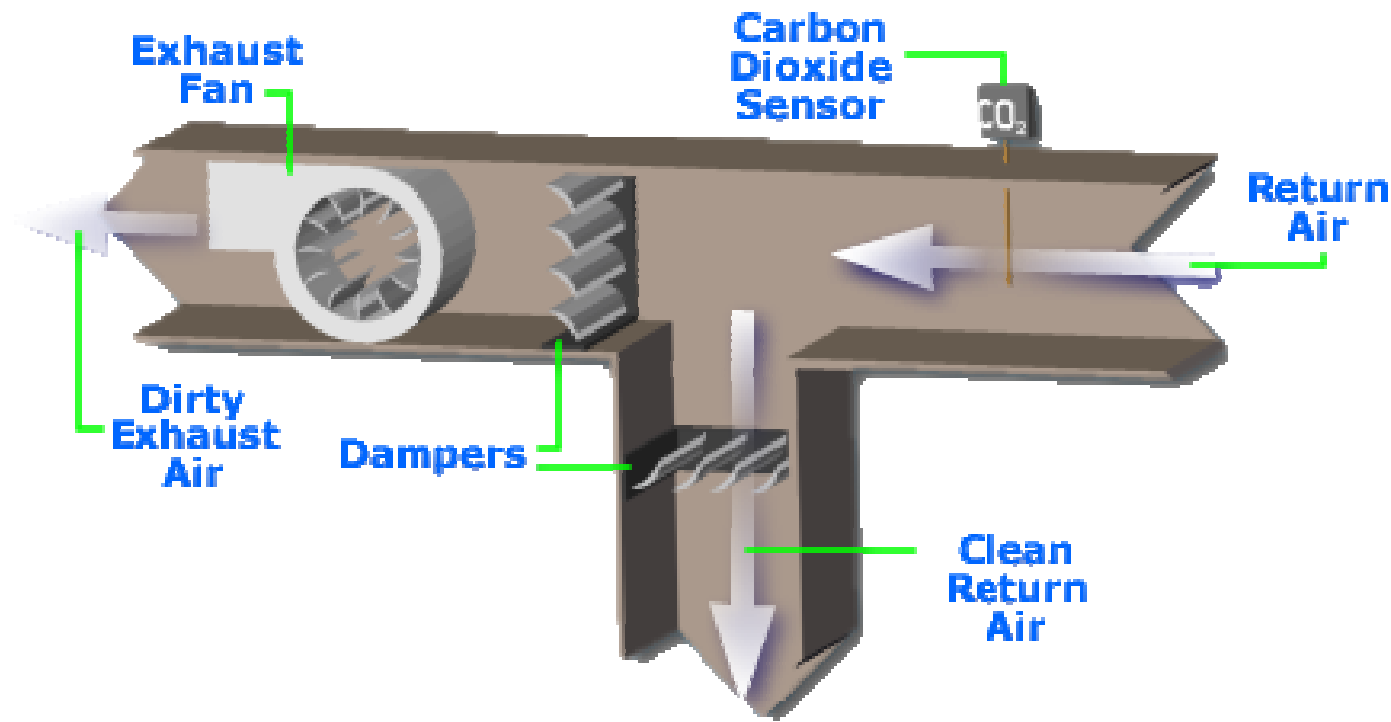
IMC Chapter 2 Definitions

- Deleted last code cycle by USBC.
- Unconfined Space
- Confined Spaces
- Unusually Tight Construction



IECC Chapter 2 Definitions

Demand control ventilation (DCV)



USBC IECC Chapter 4 and IRC Chapter 11

401.3 and N1101.9
Certificate
requirements have
been deleted.



IRC Chapter 3 New Fire Resistant Construction Provisions for Residential Construction and IMC Chapter 6

R302.5.2, M1601.6 and 603.7 Rigid duct penetrations.

Duct penetrations in garage walls and ceilings shall be 26 gage minimum and a common unit shall not serve both the garage and the dwelling.



- 26 gage duct
- Unit not serving the garage

IRC Chapter 3

R303.4.2
Exhaust
openings shall
not be directed
onto walkways.



IRC Chapter 3

- R315 Carbon Monoxide Alarms. New installation provisions for residential applications.
- USBC clarified types permitted complying with UL 2034.
- Deleted retrofit provisions.
- Added commercial applications.



IRC Section R315 Carbon Monoxide Alarms

- Required when? Whenever fuel burning appliances are installed OR where the structure has an attached garage.
- Required where? Outside of each sleeping area in the immediate vicinity of bedrooms.

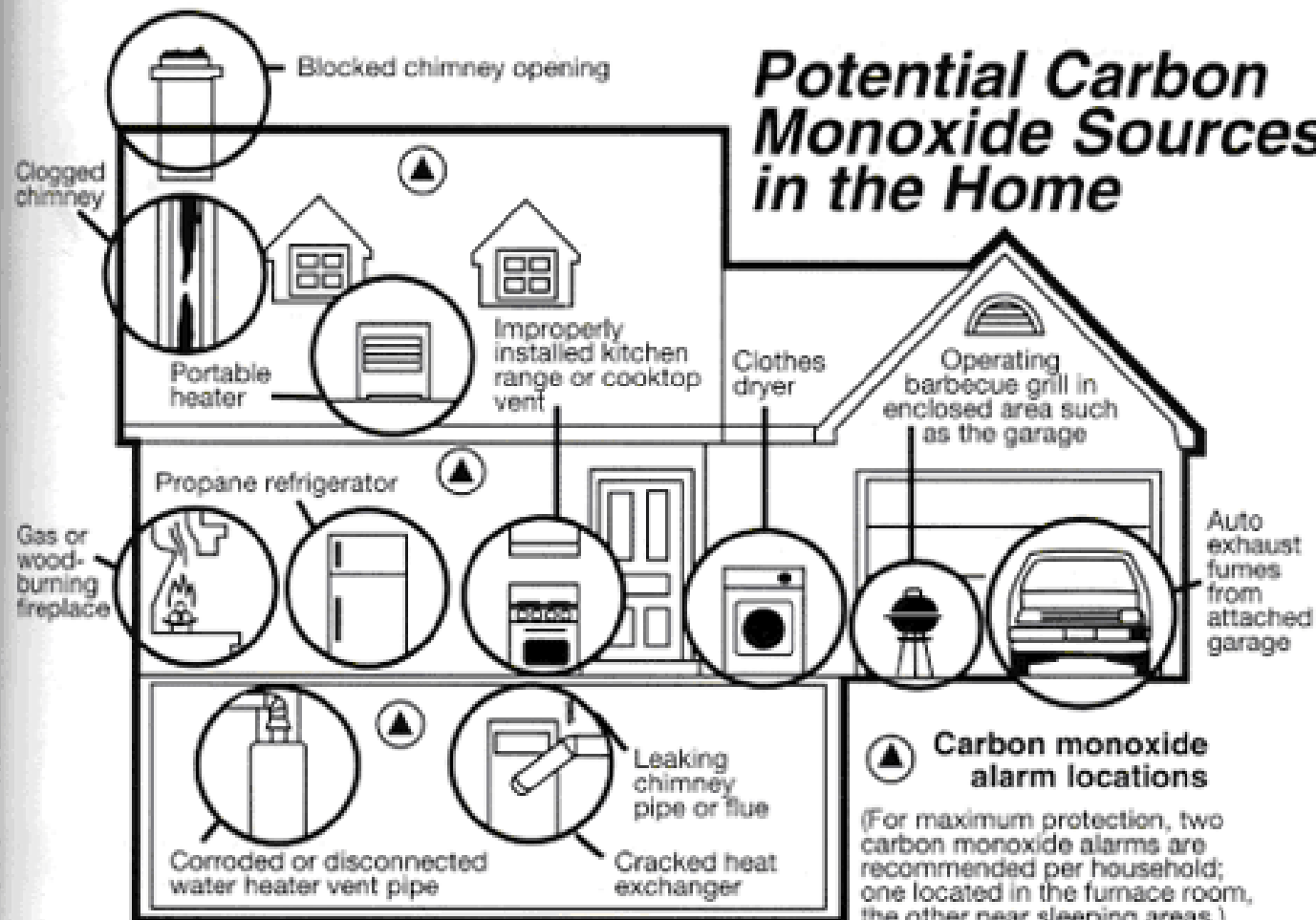


USBC 908.7 IBC

- Carbon Monoxide Alarms shall be required in all “R” occupancies containing fuel-fired appliances or where a private garage is attached to the dwelling unit.
 - Same locations as the IRC Section 315.



Potential Carbon Monoxide Sources in the Home



Information provided by BRK Electronics.



Hardwire—type



Battery—type



Plug—in type



IRC Chapter 3

Flood Resistant Construction

R322.1.6 Protection of mechanical and electrical systems.





Two options:

1. Install equipment above design flood elevation,
OR
2. Install equipment designed to prevent water entry to components.



IMC Chapter 3

303.5 Indoor Locations.
An oil fired water heater is now added to the list of appliances that must be listed for closet installation or comply with room volume provisions (12 times rule).



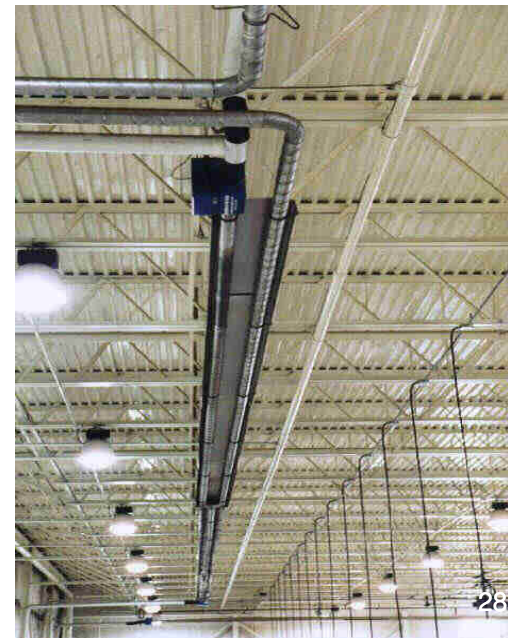
IMC Chapter 3

- 304.3 Elevation of ignition Sources. H use prohibition language now relocated to its own section. (see below)
- New 304.4 Prohibited equipment and appliance location. Equipment with ignition sources shall not be installed in H occupancies.



IMC Chapter 3

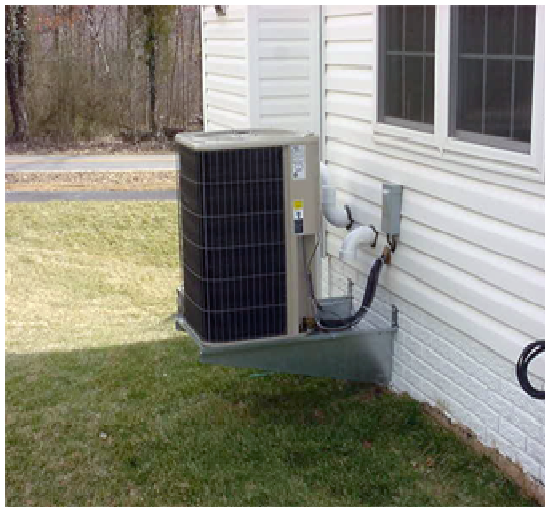
304.6 Public Garages. Changed the 2 feet clearance for appliances above the door opening to 1 foot or manufactures installation requirements.



IMC Chapter 3 and IRC Chapter 13

304.10 and M1305.1.4.1 Ground clearance.

All appliances and equipment must be located a 3 inch minimum above grade



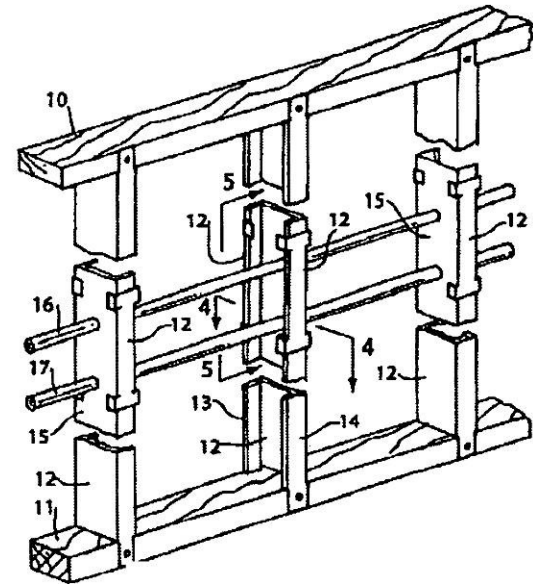
IMC Chapter 3 and IRC Chapter 13

305.5 and M1308.2 Protection against physical damage.

All mechanical piping (refrigeration, hydronic, etc..) is required to be protected the same as plumbing and fuel gas piping.



Piping Protection



IMC Chapter 3 and IRC Chapter 21

Added entry to Tables 305.4 and M2109.9
for support of polypropylene pipe.



IMC Chapter 3 and IRC Chapter 13

M1305.1.1 Furnaces and air handlers.
Added minimum clearances for air handlers.



IMC Chapter 3 and IRC Chapter 13

- 306.2 Appliances in rooms.
- 306.3 and M1305.1.3 Appliances in attics.
- 306.4 and M1305.1.4 Appliances under floors. All sections deleted words “where access is required.”



IRC Chapter 13

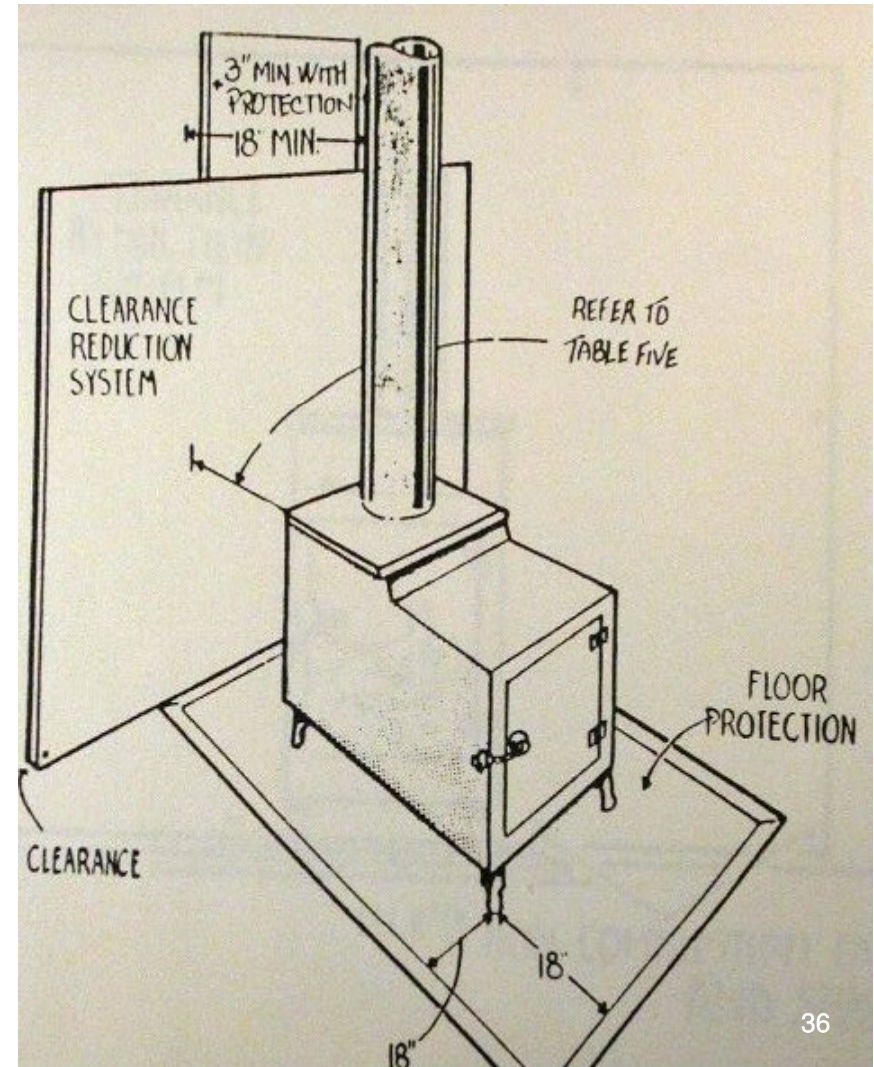
M1307.3.1 Protection from impact.
Appliances located in garages shall
be protected from vehicle impact.

- Alcove design or barriers



IMC Chapter 3 Table 308.6 IRC Chapter 13 Table M1306.2

Added consistent provisions for gage thickness in approved clearance reduction methods.



IRC Chapters 13 and 21

M1308.1 and M2101.6

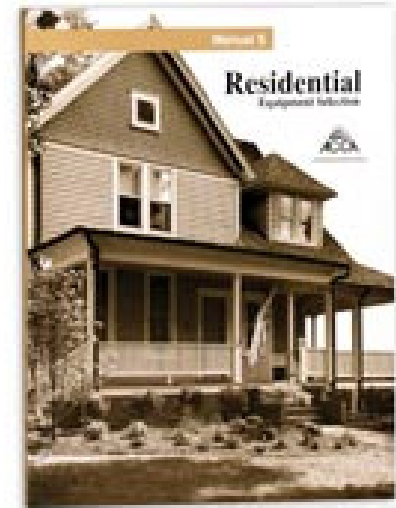
Drilling and notching. Sends the user to the applicable building sections of the IRC.

Yikes!!



IMC Chapter 3 and IRC Chapter 14

- M1401.3 Sizing. Added the use of ACCA Manual S for equipment sizing.
- 312 Load Calculations. Added the use of ASHRAE/ACCA Standard 183.



IRC Chapter 14

M1410.1 General. Identifies which type of fuel room heater needs to comply with which standard.

UL 1482
For solid
fuel



UL 896
for oil



IMC Chapter 3 and IRC Chapter 14

307.2.1 and M1411.3 Condensate disposal. Added minimum of 1/8 inch per foot slope provisions for condensate piping.



IMC Chapter 3 and IRC Chapter 14

- 307.2.2 and M1411.3.2 Drain pipe materials and sizes. Added materials approved from sanitary drainage chapters of the IPC and IRC.
- 307.2.3 and M1411.3.1 Auxiliary and secondary drain systems. Added 24 gage minimum thickness for galvanized pan.



IMC Chapter 3

Section 307 added a condensate sizing chart.

**TABLE 307.2.2
CONDENSATE DRAIN SIZING**

EQUIPMENT CAPACITY	MINIMUM CONDENSATE PIPE DIAMETER
Up to 20 tons of refrigeration	$\frac{3}{4}$ inch
Over 20 tons to 40 tons of refrigeration	1 inch
Over 40 tons to 90 tons of refrigeration	$1\frac{1}{4}$ inch
Over 90 tons to 125 tons of refrigeration	$1\frac{1}{2}$ inch
Over 125 tons to 250 tons of refrigeration	2 inch

1 inch = 25.4 mm, 1 ton = 3.517 kW.



IMC Chapter 3

Condensate

- IPC approved materials.
- Minimum slope 1/8 inch per foot.



IMC Chapter 3 and IRC Chapter 14

307.2.3.2 and
M1411.3.3

Appliance,
equipment and
insulation in pans.
Material subject to
degradation shall
be located above
the overflow line or
designed for wet
locations.



IMC Chapter 3

306.1 Access for maintenance and repair. Cannot be required to remove any pipe, duct, venting or other appliance in order to maintain or replace appliances.



IMC Chapter 3

306.5 Equipment and appliances on roofs and elevated structures. Measure to the top of the parapet or the actual climbing height .



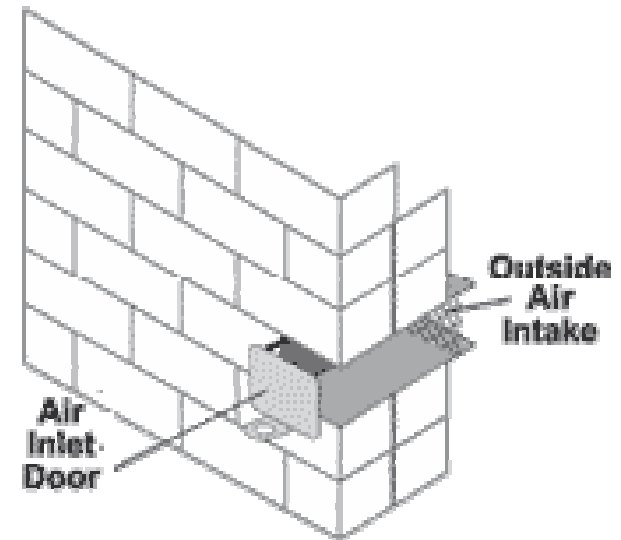
IMC Chapter 3

306.5 Equipment and appliances on roofs and elevated structures, #6.
Added guardrail and landing provisions for ladders over 30 feet in height.



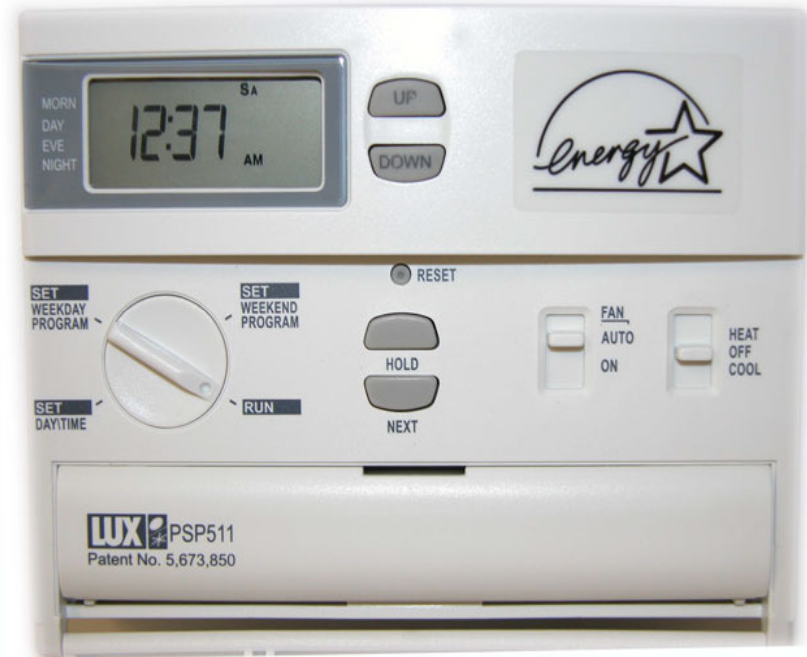
IECC Chapter 4

402.4.2.3 Fire places shall have gasketed doors and outdoor air for combustion.



IECC Chapter 4 IRC Chapter 11

403.1.1 and
N1103.1.1 At least
one programmable
thermostat per
dwelling unit shall
be provided when a
forced air furnace is
used.



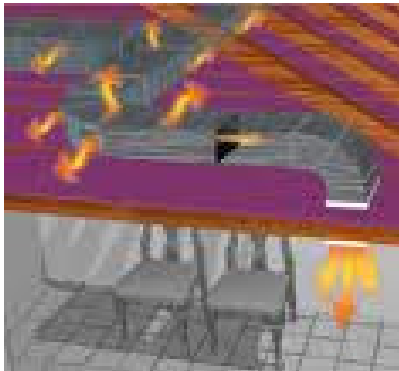
IECC Chapter 4 and IRC Chapter 11

403.2.1 and N1103.2.1
Insulation. All ductwork
shall be insulated to a
minimum value of R-6,
supply ducts in attics, R-8.
Unless the ducts are
located within the thermal
envelope.



IECC Chapter 4 IRC Chapter 11

403.2.2 and N1103.2.2 Sealing. Duct sealing is required per the IMC and IRC and a tightness test is required if the ducts are located outside the building thermal envelope.



2 - USBC Amendments (related to previous slide)

- Permits the duct tightness test to be optional.
- Clarifies that an “approved” testing individual/firm can perform the test.



IECC Chapter 4 and IRC Chapter 11

403.2.3 and
N1103.2.3 Building
cavities. Framing
cavities not
permitted to be
used as supply
ducts.



IECC Chapter 4 IRC Chapter 11

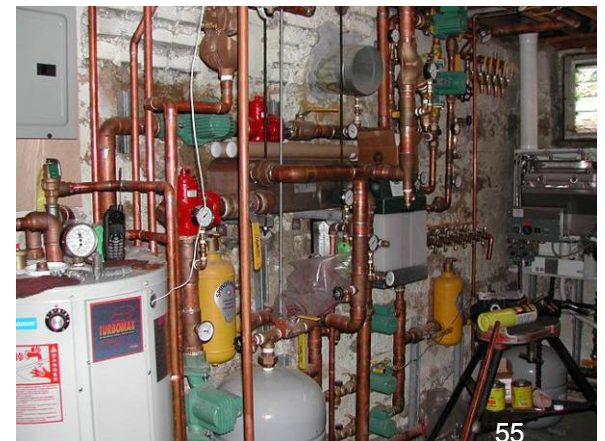
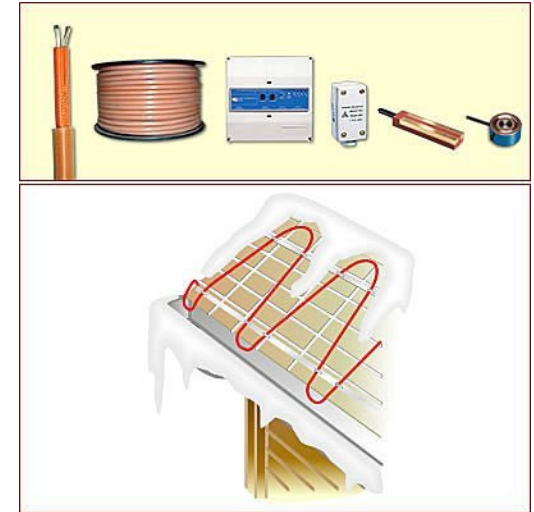


403.3 and N1103.3.3
Mechanical system
insulation. Piping
systems capable of
carrying fluids above
105 and below 55
degrees shall be
insulated to a minimum
R-3 value.



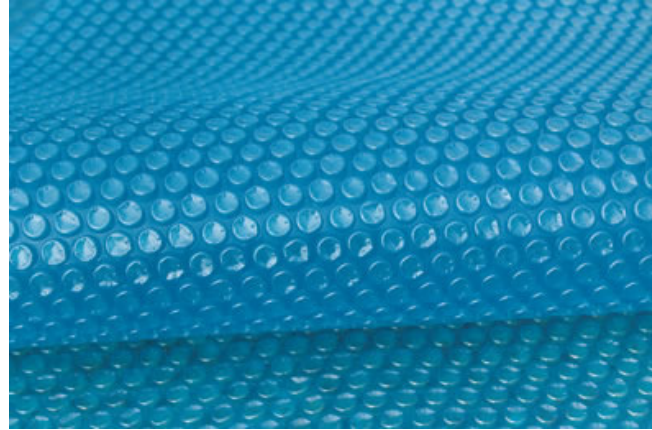
IECC Chapter 4/5 and IRC Chapter 11

- 403.9, 503.2.4.5 and N1103.7 Snow melt controls.
 - Automatic shut off when pavement temperature is above 50°.
 - And manual or automatic shut off when temperature is above 40°.



IECC Chapter 4/5 and IRC Chapter 11

- 403.8, 504.7 and N1103.8 Pools.
 - No continuous standing gas pilot permitted.
 - Time switches required on heaters and pumps.
 - Vapor retardant covers shall be provided.



IMC Chapter 4

- 401.4 Intake opening location. Reformatted and changed 2 feet to 3 feet for contaminate source location above air intake.
- Removed 401.5 and relocated the exhaust opening provisions (slightly re-worded) to chapter 5.



IMC Chapter 4

- 403.1 New mechanical ventilation criteria picked up in the 06 VMC
 - (M-44).
- 404.2 Minimum ventilation (enclosed parking garages). Reduced airflow rate by half, from 1.5 to .75 cfm per square foot.



USBC IMC Chapter 4

- 2009 IMC Table 403.3 is based on the absence of smoking (other than for smoking lounges).
- VA legislation permits smoking in restaurants in separate designated areas.



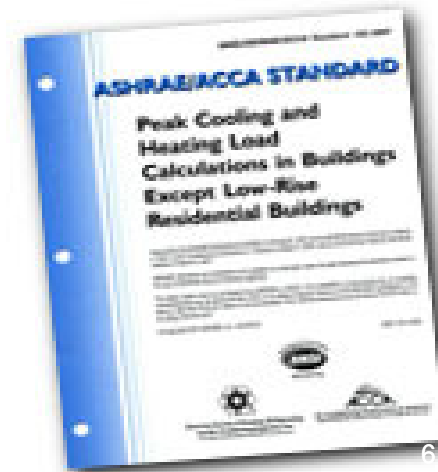
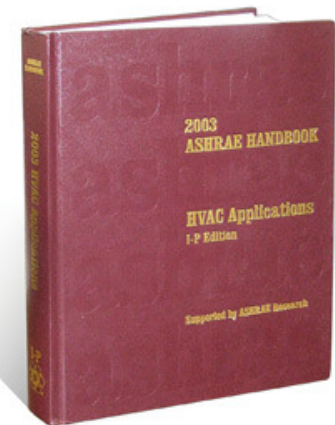
USBC IMC Chapter 4

Added outdoor ventilation rates for other type areas where smoking is permitted, lounges at 30 cfm, bars at 30 cfm and dinning areas at 20 cfm. Rates based on 2006 IMC.



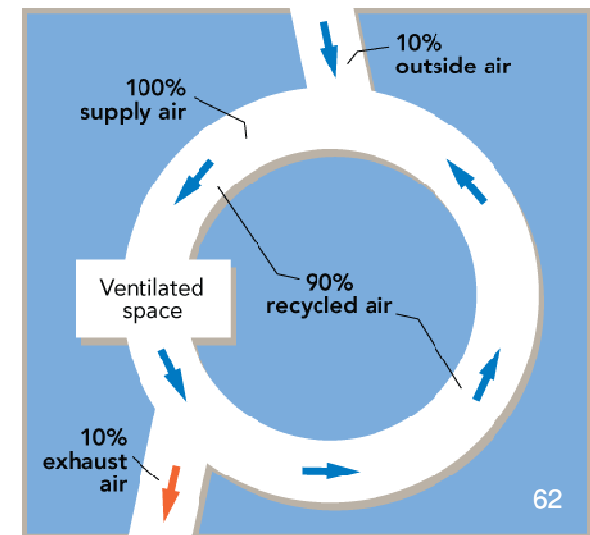
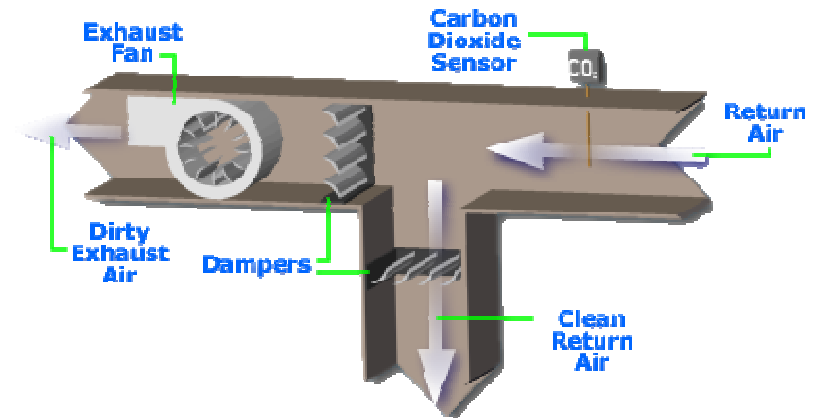
IECC Chapter 5

- 503.2.1 Calculation of heating and cooling loads.
 - Identifies options used for load calculations.
 - Provides adjustments for use of energy recovery systems.
 - Does not necessarily correlate with IMC.



IECC Chapter 5

- 503.2.1 Demand control ventilation system.
 - Required for spaces greater than 500 ft² with average occupant load of 40 people per 1000 ft² (per IMC).
 - Provides for energy recovery systems and enthalpy of outdoor air supply.



IECC Chapter 5

503.2.3 equipment performance requirements. Revised Table 503.2.3(1).



IECC Chapter 5

- 503.2.8 Piping insulation. All piping serving heating and cooling systems shall be insulated in accordance with Table 503.2.8.
 - Based on insulation thickness, medium in pipe and pipe diameters.
 - Completely different than residential.

TABLE 503.2.8
MINIMUM PIPE INSULATION
(thickness in inches)

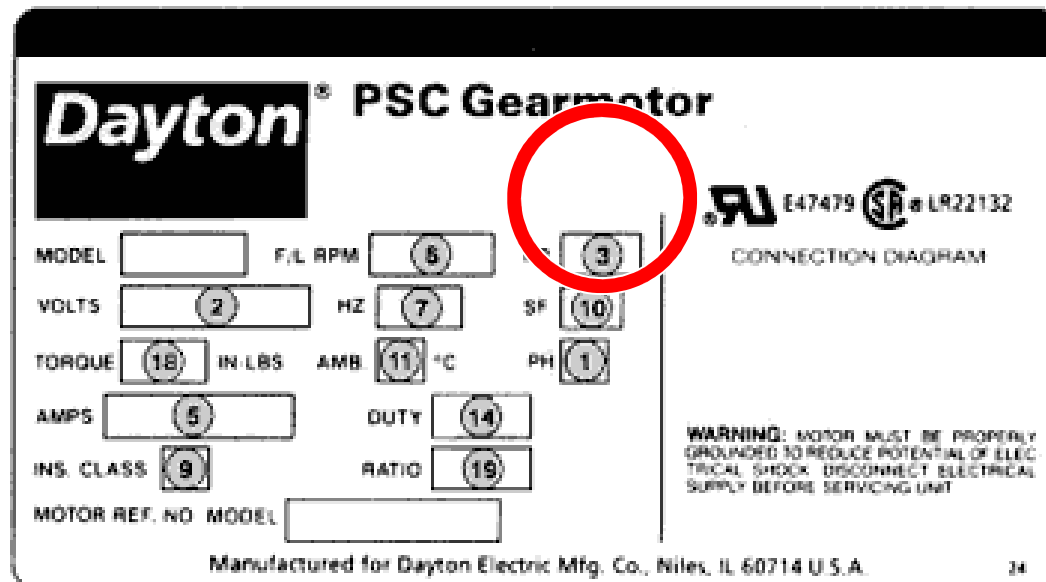
FLUID	NOMINAL PIPE DIAMETER	
	≤ 1.5"	> 1.5"
Steam	1½	3
Hot water	1½	2
Chilled water, brine or refrigerant	1½	1½



IECC Chapter 5

503.2.10 Air system design and control.

- Maximum allowable fan horsepower based on nameplate.
- Maximum allowable fan brake horsepower



Dayton® PSC Gearmotor

MODEL F/L RPM 3

VOLTS 2 HZ 7 SF 10

TORQUE 18 IN-LBS AMB 11 °C PH 1

AMPS 5 DUTY 14

INS. CLASS 9 RATIO 19

MOTOR REF. NO. MODEL

UL E47479 cUL LR22132

CONNECTION DIAGRAM

WARNING: MOTOR MUST BE PROPERLY GROUNDED TO REDUCE POTENTIAL OF ELECTRICAL SHOCK. DISCONNECT ELECTRICAL SUPPLY BEFORE SERVICING UNIT.

Manufactured for Dayton Electric Mfg. Co., Niles, IL 60714 U.S.A.

24



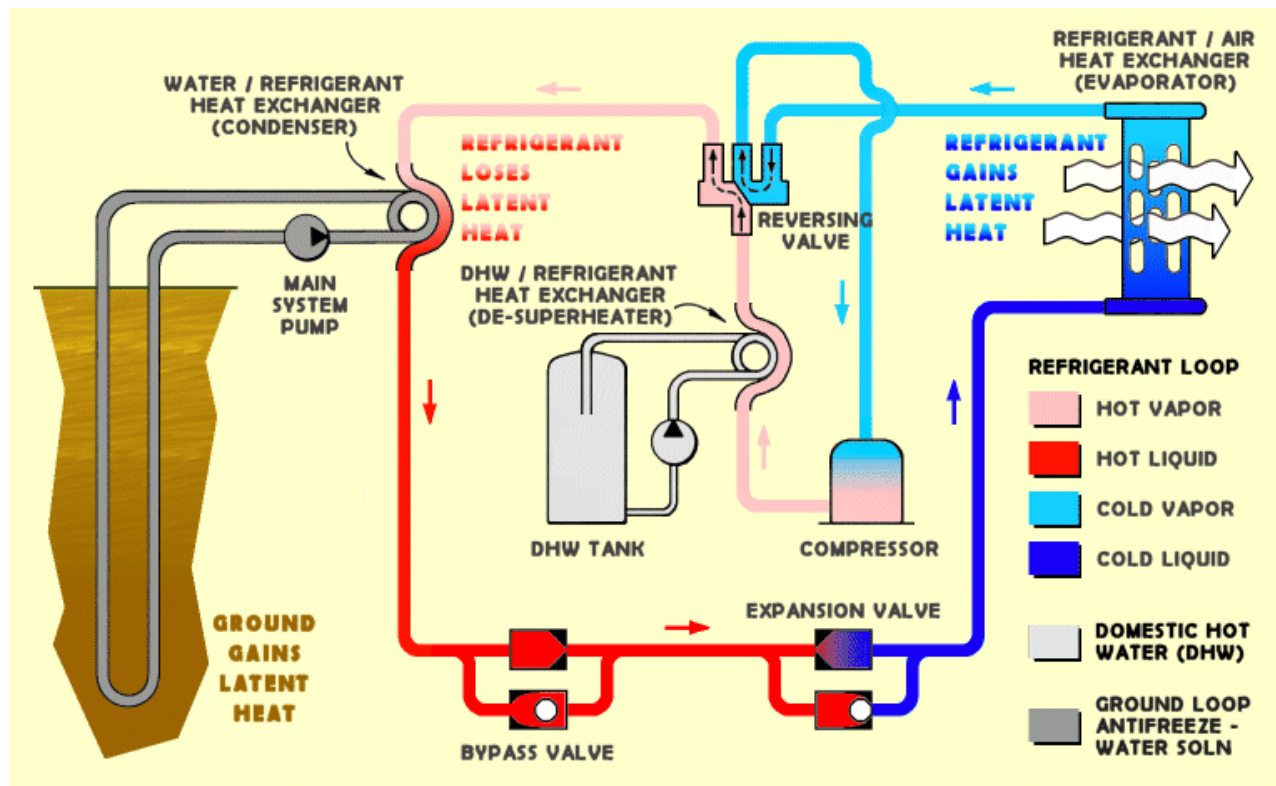
IECC Chapter 5

- 503.2.1 Heating outside a building.
 - Shall be radiant.
 - Shall be controlled by occupancy sensing device or timer switch that will de-energize when no occupants are present.



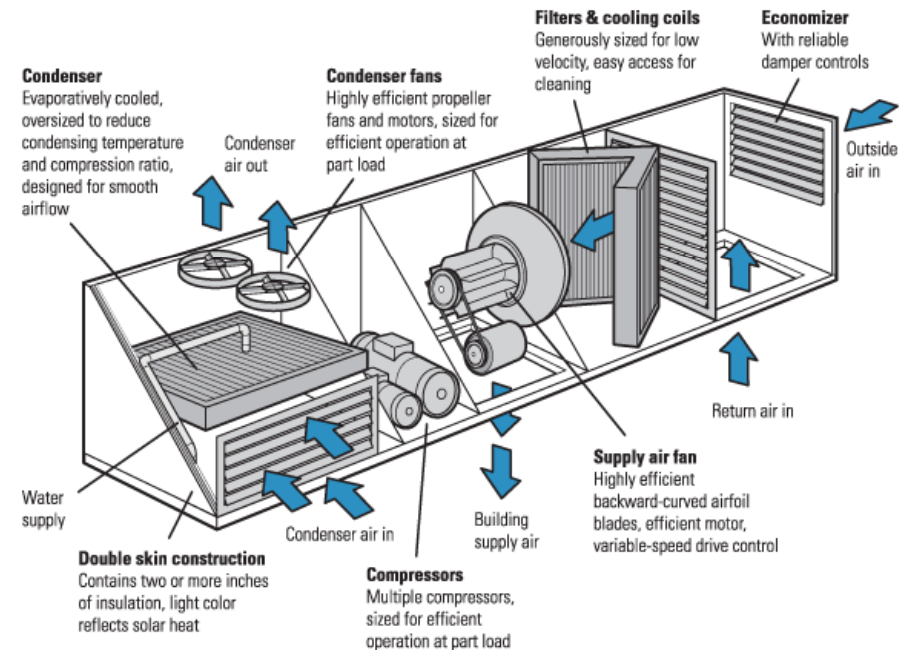
IECC Chapter 5

503.4.3.3 Hydronic (water loop) heat pump systems. Added new design criteria.



IECC Chapter 5

503.4.5.4 Supply-air temperature reset controls.



Courtesy: E source



IECC Chapter 5

Section 506 Total Building Performance

Entire section dedicated to
performance compliance methods for
energy design.



IMC Chapter 5

- 501.2.1-2.2 Location of exhaust outlets. Relocated from 2006 edition, Section 401.5.
- 501.3 Pressure equalization. Added exception from requirements for R 2 dwelling units to maintain negative or neutral pressure.



IMC Chapter 5 and IRC Chapter 15

- Sections 504 IMC and Section M1502 IRC
- Clothes Dryer Exhaust – Completely revised format



We went from this –

While constantly trying to avoid this.

IMC Chapter 5 and IRC Chapter 15

USBC Amendment
Maintains the 35 feet
maximum
consistent between
the IRC and IMC.



"I thought you wanted a clothes dryer."



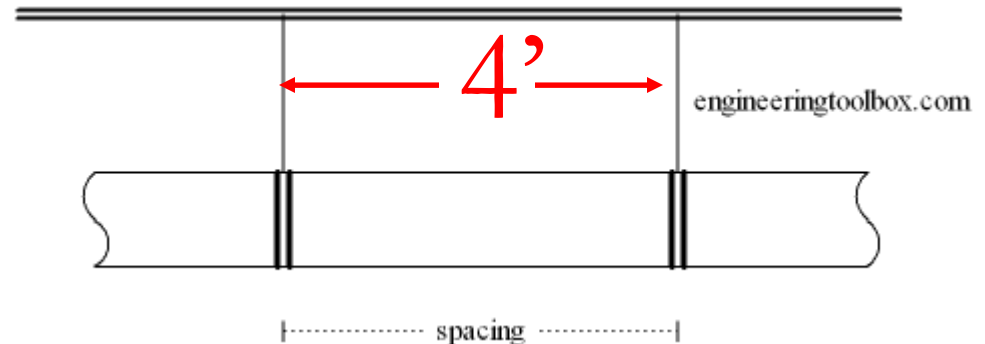
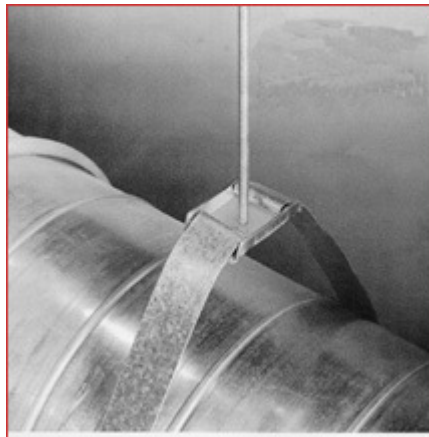
IMC Chapter 5

504.2 Exhaust Penetrations (wall or ceiling). Shall be protected by an approved fire caulking or wall receptacle.



IMC Chapter 5 and IRC Chapter 15

504.6 and
M15042.4.2 Duct
installation.
Support required
at 4 foot intervals.



IMC Chapter 5

504.6 and M1502.4.4 Duct length- Entire section change.

- Incorporates the use of long radius fittings.
- Details the use of manufactures installation instructions .
- Requires identification when duct is concealed.
- Requires protection from physical damage.





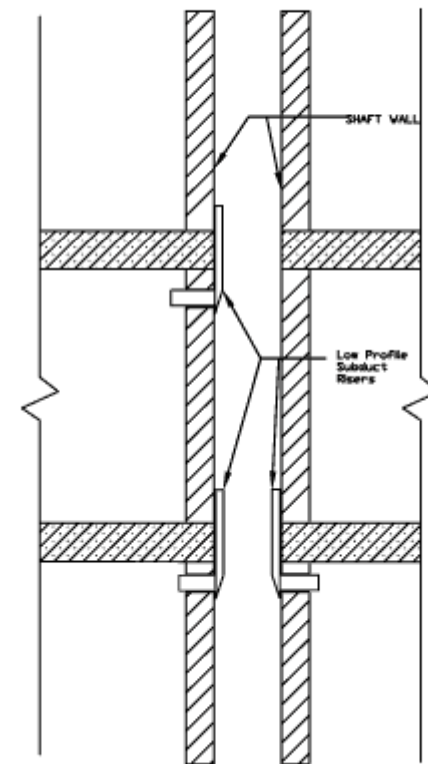
Locate within 6 feet
Long pattern fittings
Shield Plates
Support at 4'



IMC Chapter 5

504.8 Common exhaust systems for clothes dryers located in multistory structures is now permitted.

fig.1



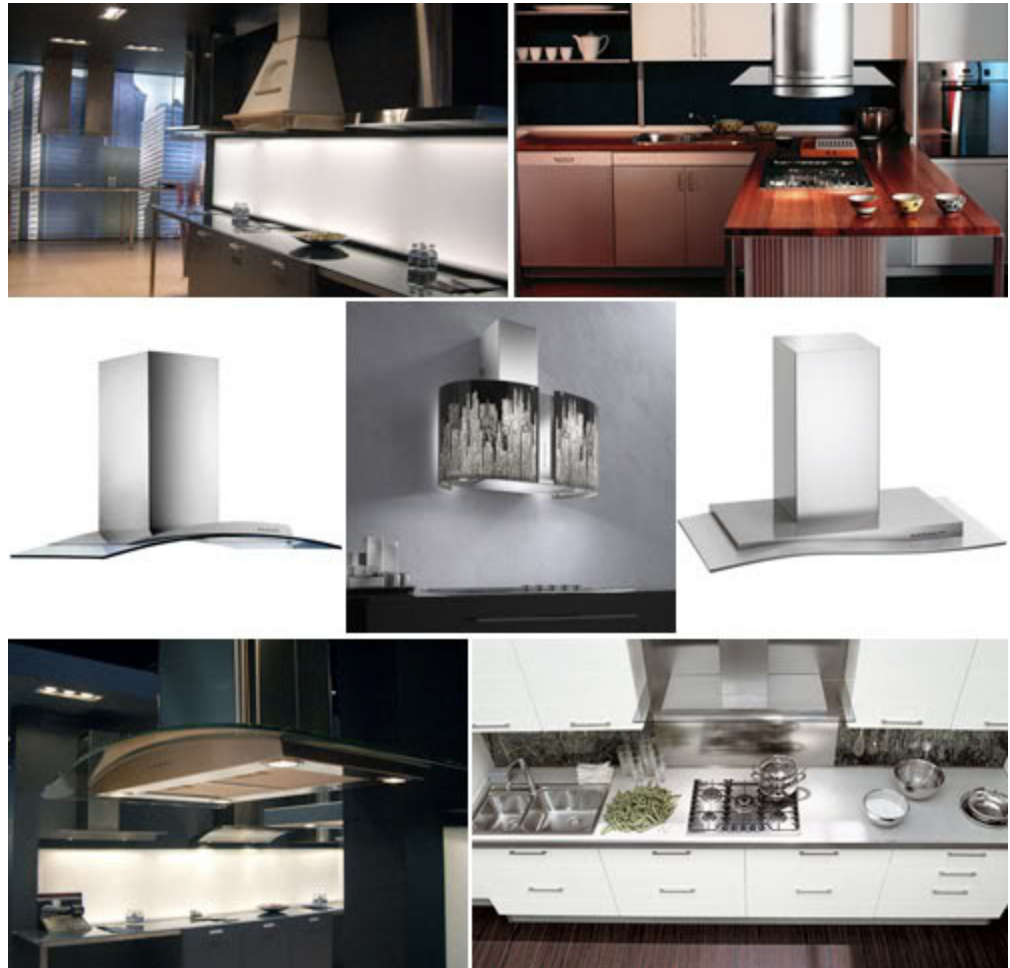
IMC Chapter 5

- Shaft constructed in accordance with the IBC.
- Dampers prohibited.
- Duct in shaft minimum 26 gage.
- No offsets.
- Fan designed for application and located outside the airstream.
- Fan shall run continuously, be connected to standby power source and shall be monitored.



IMC Chapter 5 and IRC Chapter 15

505.2 and
M1503.4
Interconnected
makeup air
required for
hoods
exhausting
more than 400
cfm.



IRC Chapter 15

M1505 Overhead Exhaust Hoods.
Required for open top broiler units.



IMC Chapter 5

505.1 Domestic systems. Added the allowance for underground PVC exhaust systems for domestic downdraft appliances.



IMC Chapter 5

506.3.1 Grease duct materials. Added factory built grease ducts listed to UL 1978.



IMC Chapter 5

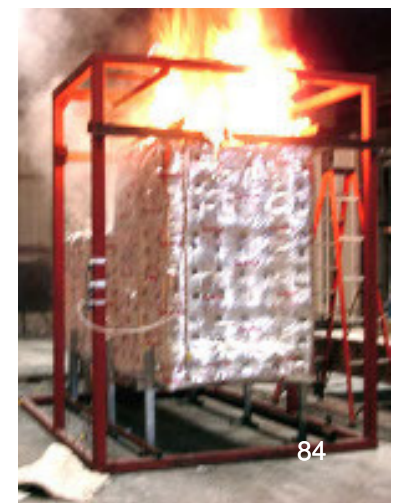
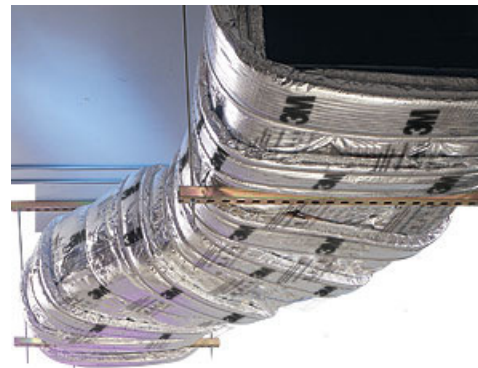
506.3.2.1 Duct joint types. Added welded flange joints to list of approved grease duct joints.

➤ Maximum
depth $\frac{1}{2}$ inch.



IMC Chapter 5

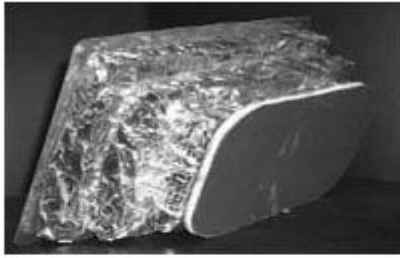
- 506.3.2.5 Grease duct test. Removed the statement “in the presence of the code official.”
- 506.3.6 Grease duct clearances. Added UL 1978 factory built ducts and systems listed to ASTM E 2336.



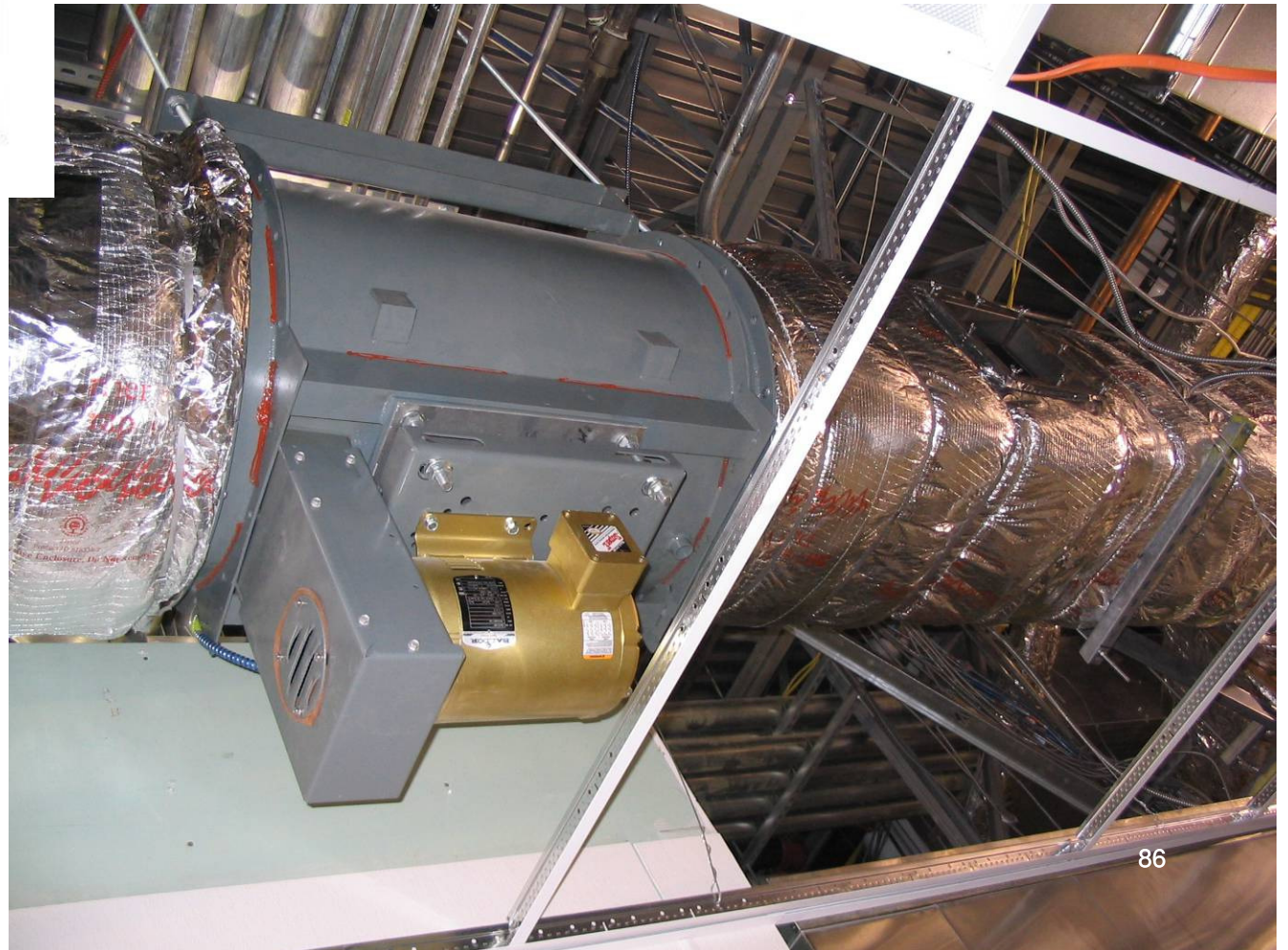
IMC Chapter 5

- 506.3.8 Grease duct cleanouts and other openings.
 - Removed the use of tools prohibition.
 - For personnel entry, increased dimension to 22" X 20".
 - Added cleanouts for in-line fans. Both at the inlet and outlet within 3 feet.





In-Line Fan



IMC Chapter 5

- 506.3.10 Grease duct enclosures.
Reformatted, reworded and divided into 3 separate categories.
 - Shaft enclosure – typical gypsum construction.
 - Field-applied grease duct enclosure – wraps systems listed to ASTM E 2336.
 - Factory-built grease duct assemblies – duct work incorporating enclosure allowances into their design listed to UL 2221.



Gypsum

ASTM E 2336

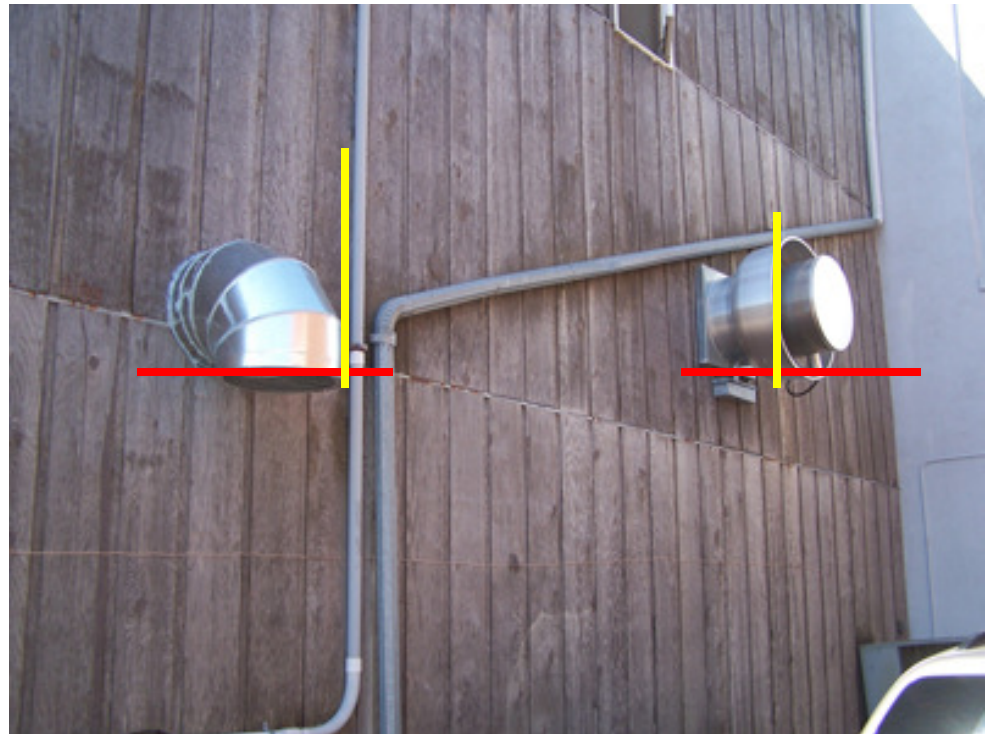


UL 2221



IMC Chapter 5

506.3.12.3 Termination location. Changed the longstanding 2 feet measurement to 3 feet above air intakes.



IMC Chapter 5

- 506.4.2 Type II terminations. Included fan termination provisions in Section 506.4 for Type II exhaust.



IMC Chapter 5

507.1 General.
Added minimum
exhaust
provisions based
on square footage
for ventless
appliance
locations. Added
variable speed fan
operation for low
or part load
cooking
conditions.



IMC Chapter 5

- **507.2.1** Type I hoods. Required above all medium, heavy, extra heavy duty appliances and any light duty appliance that produces grease or smoke.
- **507.2.2** Type II hoods. Eliminated Type II hood requirements for light duty appliances when the kitchen ventilation design incorporates the additional loads into the HVAC or a separate exhaust system is provided.



IMC Chapter 5

507.9 Clearances for Type I hood. Provides relief when gypsum or cement board is applied to metal studs all areas within 18 inches of hood with stainless material between them. Hood can mount directly on the surface.



IMC Chapter 5

507.13.1 -13.4 _____ duty appliances.
References back to Section 507.2 for
the required type of hood for each level
of duty appliance to determine exhaust
rates.



IMC Chapter 5

508.2 Make-up air.

Temperature requirement changed to prevent one system from working against the other. Exception added for compensating hoods to allow front and side discharge hoods to not bear labeling of maximum make-up air flow.



IMC Chapter 5

- 510.6.1 Fire and smoke damper (hazardous exhaust)— prohibited in hazardous ducts. Simply included smoke dampers.
- 510.8 Duct construction (hazardous exhaust). Added requirement that duct material be compatible with the material being exhausted.



IMC Chapter 5

[F] 513.11 Power systems (smoke control). Up- dated references.



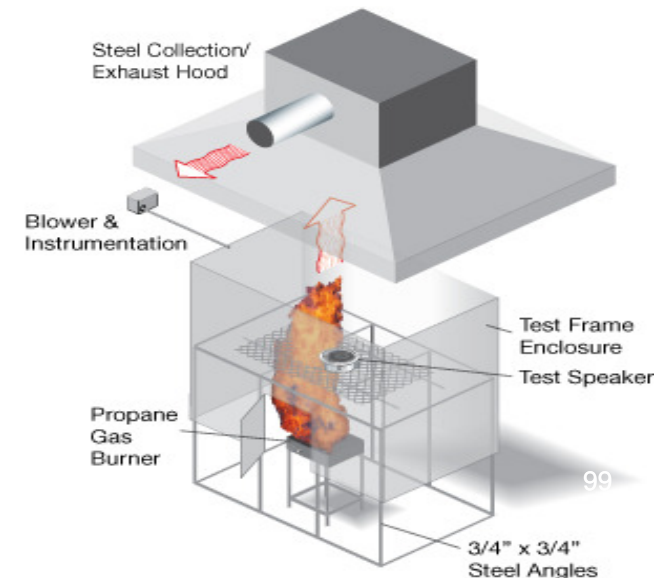
IMC Chapter 6

[B] 601.2 Air movement in egress elements. Added a 4th exception to allow for “incidental” air movement from pressurized rooms within health care facilities as long as the corridor is not the primary source of supply or return to the room.



IMC Chapter 6

- 601.4 Contamination prevention. Provides new exception for exhaust systems permitted to have 10% leakage per Section 403.2.1.
- 602.2.1.4 Electrical equipment in plenums. Permits the use of electrical components located in an a metallic enclosure. And allows electrical equipment in combustible enclosures that are listed to UL 2043.



IMC Chapter 6

- 603.4.1 Minimum Fasteners. Allows 3 screws to be equally spaced around joint where partially concealed.

Table 603.4
and Table M1601.1.1(2).
Consistent gage
thickness is achieved.



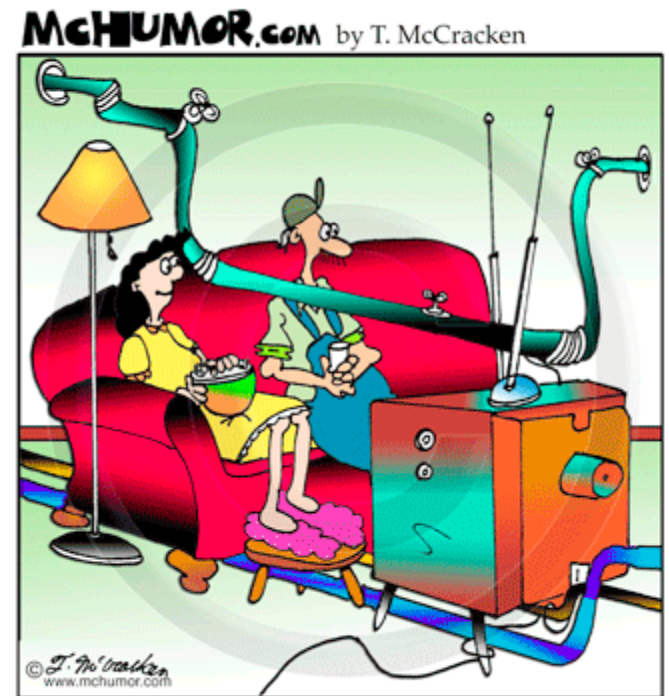
IMC Chapter 6

603.8.1 Slope. Minimum slope 1/8 inch per foot.



IMC Chapter 6 and IRC Chapter 16

603.9 Joints seams and connections. Added liquid sealant option and includes listed closure systems.



Why it's a bad idea to decide on location changes of ductwork late in a building project.

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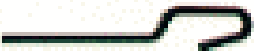

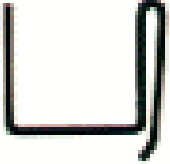

IRC Chapter 16

- M1601.4.1 Joints seams. Added reference to manufacturers' installation instructions; and three exceptions:
 - Spray polyurethane foam is permitted in lieu of sealed joints.
 - Where duct is partially concealed 3 screws shall be equally spaced on exposed surface to prevent hinge effect.
 - Continuously welded and locking longitudinal joints with system operating pressures less than 2 inches water column shall not require additional sealing.



Spray Insulation and Duct Joint Types

M1601.4.5 Duct insulation. Spray foam may be used where subject to condensation.

PITTSBURGH 	UNION GRAFADO DOUBLE SEAM ROLL 
PRESILLA DRIVE CLEAT ROLL 	MARCO SLIP DUCT CONNECTOR 
ZETA 	



IRC Chapter 16

M1601.4.2 Plastic duct joints. Shall be made in accordance with the manufactures' installation instructions.



IMC Chapter 6

- 604.3 coverings and linings. Added UL 723 testing.
- 604.7 Identification. Removed identification requirement for spray foam.



*Don't sweat it... Dude. It's the 2nd HVAC unit to fall through the roof today!
The industrial-strength insulation usually holds it up for awhile.*



IRC Chapter 16

- M1601.5 Under-floor plenums. Prohibited in new construction. Existing can remain, cleanouts can be located in under-floor plenum if unvented crawl receives conditioned air.
- M1602.2 Prohibited sources (items 4 & 6). Added boiler room, unconditioned attics and crawl spaces to prohibited locations for taking return air. Transfer openings to crawl spaces are permitted.



IMC Chapter 6

Ducts and Transfer Openings

Entire Section 607 is [B]

- Provisions incorporated from the IBC due to fact that many mechanical system designs share overlapping provisions such as the installation of dampers.
 - Added reference to UL 263.
 - Added consistent gage thickness references.



IMC Chapter 6

- 607.5 Where required. Eliminated reference to ceiling dampers.



- 607.5.5 Shaft enclosures. Number 5 references clothes dryers utilizing a shaft configuration and deletes the smoke damper requirement at the shaft penetration (number 1 deletes the fire damper) when sub-ducting is utilized.



IMC Chapter 6

607.5.5.1 Enclosure at the bottom. Provides 3 options for the design and construction of the bottom of shafts.



IMC Chapter 6

- 607.5.6 Exterior walls. Requires installation of dampers in openings located in exterior rated walls.
 - May impact combustion air opening location?
 - Sends user to the IBC.



IMC Chapter 6

607.5.7 Smoke partitions. Provides guidance for damper installation in smoke partition.



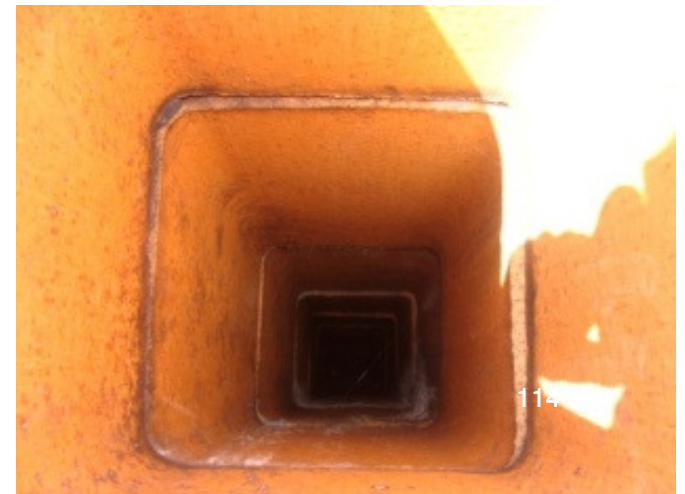
IMC Chapter 7 IRC Chapter 17

Removed generic combustion air provisions and directs the user to NFPA 31 for oil or the IFGC (commercial) –Chapter 24 IRC (residential) for natural gas or LP.



IRC Chapter 10

- R1003.11.1 Removed “or equivalent” to ASTM C 315 as an approved lining system.
- R1003.12 Clay flue lining (installation). Added “water insoluble” to the refractory mortar conforming to ASTM C 199.



IMC Chapter 8

- 801.2 General. Added exception for appliances vented through Type I hoods (remember IMC pertains to oil and solid fuel)
- 801.20 Plastic joints. Corrected section by removing the “contrasting color” of primer for plastic piping joints and simply refers to the appliance installation instructions.



IMC Chapter 9

- 913.1 General. Electric dryers shall be tested to UL 2158.
- 914.2 Installation. Sauna heaters shall be listed to UL 875.
- 915.1 General. Engine and gas powered equipment must also comply with UL 2200.

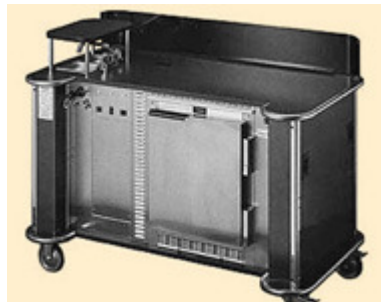


**SAUNA
HEATERS**



IMC Chapter 9

- 917.1 Cooking appliances. Commercial units shall comply with UL 197.
- 918.6 Prohibited sources. Added 10' separation for return openings and cooking appliances.
- 924.1 General. Added reference to the IBC and IFC for Fuel Cell power installations.
- 927.1 Ducted heat recovery ventilators. New section includes listing to UL 1812.



IMC Chapter 10

1003.1 General.
Requires
compliance with
ASME Boiler and
Pressure Vessel
Code for all
pressure vessels.



IMC Chapter 11 Table 1103.1

- Re-titled
- Reformatted
- Updated refrigerant capacities
 - All to be consistent with industry standards.



IMC Chapter 11 and IRC Chapter 14

USBC Amendment

1110.10 and M1411.6 Locking access port caps.
All refrigeration ports must have locking caps.

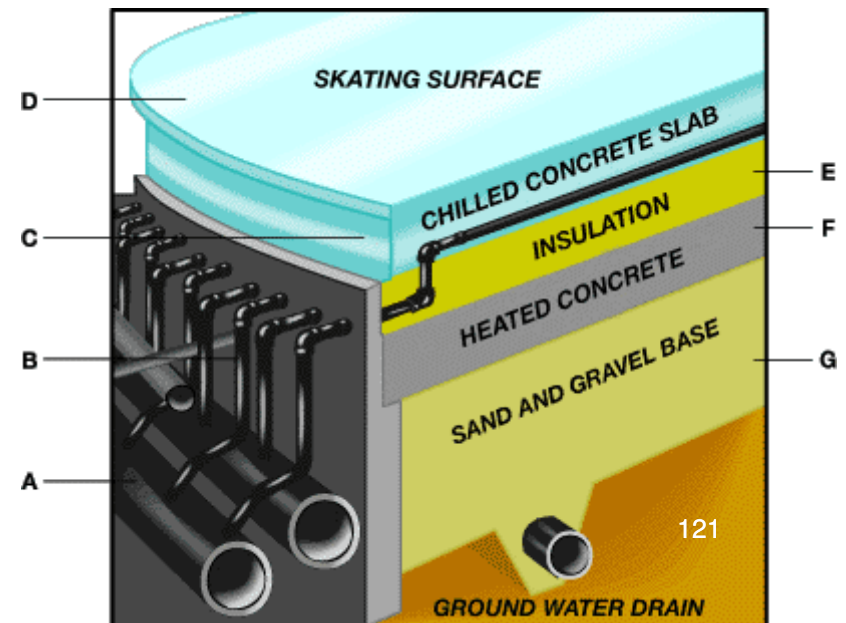
USBC IMC

1110.10 does not
require the locking
caps for systems
that are otherwise
“secure.”



IMC Chapter 11

- 1104.2.2 Industrial occupancies and refrigerated rooms. Added exclusion for ammonia in number 6.
- 1107.2 piping location. Added industry standards for piping location.



IMC Chapter 12

- 1201.2 Sizing. Added hydronic system components to sizing requirements for the “demand.”
- 1201.3 Standards. Permits the use of ASME B31.9 as an alternative for hydronic piping system installation.



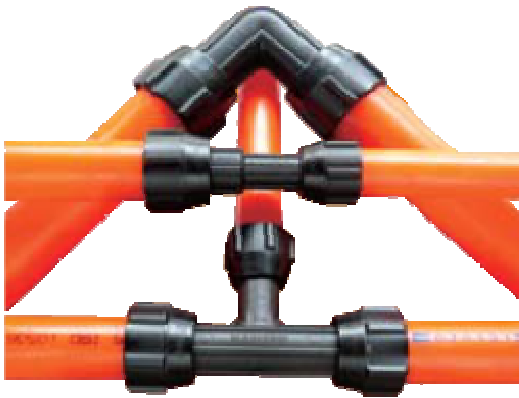
IMC Chapter 12 Tables 1202.4 & 5

- Added new materials for use in hydronic systems.
 - Ductile iron
 - Polyethylene
 - Polypropylene
 - Raised temperature polyethylene



IMC Chapter 12 and IRC Chapter 22

1203.17-19 and M2104.3-4. Added several approved plastic fitting and connection methods. Materials include PE-RT, PE-AL-PE and PEX-AL-PEX (IMC only).



IRC Chapter 12 and IMC Chapter 12

M2101.2 and 1206.2 System drain down. Added new exception for buried portions of the system.



IRC Chapter 21 and IMC Chapter 12

- M2103.2 and 1209.5 Thermal barrier required for underground hydronic systems.



IMC Chapter 12

- 1204.1 Insulation characteristics. Added use of UL 723.
- 1206.1 deletion. Removed prohibition of fluid entering supply line through a tee branch opening.



IRC Chapter 22

M2201.2 Above ground tanks. New exception permits storage systems exceeding 660 gallons – requires compliance with NFPA 31.



1,000 gallons



660 gallons



IRC Chapter 22

M2202.3 Flexible connectors.

Shall be listed to UL 536. Combustible connectors shall not be used inside buildings or above ground outside.



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"Sorry, but you're in violation of building codes.
You can only use lo-cal hi-fiber wood here."



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